

AMENDMENT TO THE CLAIMS

1. (currently amended) A method of making an electrically programmable memory element, comprising:

providing a first dielectric layer, said first dielectric layer having an opening, said opening having a sidewall surface and a bottom surface;

forming a conductive layer on said sidewall surface and said bottom surface;

removing at least a portion of said conductive layer from said bottom surface;

forming a second dielectric layer on said conductive layer and on said bottom surface within said opening; and

forming a programmable resistance material in electrical communication with said conductive layer.

Claims 2-6 (canceled)

7. (previously presented) The method of claim 1, wherein said programmable resistance material is a phase-change material.

8. (original) The method of claim 1, wherein said programmable resistance material includes a chalcogen element.

9. (original) The method of claim 1, wherein said first dielectric layer and said second dielectric layer are formed of the same material.

Claims 10-15 (Cancelled)

16. (previously presented) The method of claim 1, wherein said forming said conductive layer step comprises substantially conformally depositing said conductive layer on said sidewall surface and said bottom surface.

17. (previously presented) The method of claim 1, wherein said removing step comprises substantially anisotropically etching said conductive layer.

18. (previously presented) The method of claim 1, wherein said programmable resistance material is electrically coupled to a top surface of said conductive layer.

19. (previously presented) The method of claim 1, wherein after said removing step, said conductive layer includes a conductive sidewall spacer.

20. (currently amended) A method of making an electrically programmable memory element, comprising:

providing a sidewall surface and an adjoining bottom surface;

forming a conductive layer on said sidewall surface and said bottom surface;

removing at least a portion of said conductive layer from said bottom surface;

forming a dielectric material on said conductive layer and on said bottom surface;

and

forming a programmable resistance material in electrical communication with said conductive layer.

21. (previously presented) The method of claim 20, wherein said forming said conductive layer step comprises substantially conformally depositing said conductive layer on said sidewall surface and said bottom surface.

22. (previously presented) The method of claim 20, wherein said removing step comprises substantially anisotropically etching said conductive layer.

23. (previously presented) The method of claim 20, wherein said programmable resistance material is electrically coupled to a top surface of said conductive layer.

Claim 24 (cancelled)

25. (currently amended) The method of ~~claim 24~~ claim 20, wherein said dielectric ~~layer~~ material is formed on said conductive layer before said forming said programmable resistance material step.

26. (currently amended) The method of claim 20, wherein said sidewall surface is the sidewall surface of a ~~first~~ dielectric layer.

Claims 27, 28 (cancelled)

29. (currently amended) The method of ~~claim 27~~ claim 26 wherein said ~~first dielectric layer~~ dielectric material and said ~~second~~ dielectric layer are formed of the same material.

30. (currently amended) A method of making an electrical device, comprising:

providing a sidewall surface and an adjoining bottom surface;

forming a conductive layer on said sidewall surface and said bottom surface;

removing at least a portion of said conductive layer from said bottom surface;

forming a dielectric material on said conductive layer and on said bottom surface;

and

forming a chalcogenide material in electrical communication with said conductive layer.

31. (previously presented) The method of claim 30, wherein said forming said conductive layer step comprises substantially conformally depositing said conductive layer on said sidewall surface and said bottom surface.

32. (previously presented) The method of claim 30, wherein said removing step comprises substantially anisotropically etching said conductive layer.

33. (previously presented) The method of claim 30, wherein said programmable resistance material is electrically coupled to a top surface of said conductive layer.

Claim 34 (cancelled)

35. (currently amended) The method of ~~claim 34~~ claim 30, wherein said dielectric ~~layer~~ material is formed before said forming said programmable resistance material step.

36. (currently amended) The method of claim 30, wherein said sidewall surface is the sidewall surface of a ~~first~~ dielectric layer.

Claims 37, 38 (cancelled)

39. (currently amended) The method of ~~claim 37~~ claim 36, wherein said ~~first dielectric layer~~ dielectric material and said ~~second~~ dielectric layer are formed of the same material.

40. (previously presented) The method of claim 30, wherein after said removing step, said conductive layer includes a conductive sidewall spacer.

41. (currently amended) A method of making an electrical device, comprising:

forming an electrical contact by a method comprising
providing a sidewall surface and an
adjoining bottom surface,

forming a conductive layer on said sidewall
surface and said bottom surface, and

removing at least a portion of said
conductive layer from said bottom surface;

forming a dielectric material on said
conductive layer and on said bottom surface;

and

forming a chalcogenide material,
said chalcogenide material in electrical communication with
said electrical contact.

42. (previously presented) The method of claim 41, wherein said forming said conductive layer step comprises substantially conformally depositing said conductive layer on said sidewall surface and said bottom surface.

43. (previously presented) The method of claim 41, wherein said removing step comprises substantially anisotropically etching said conductive layer.

44. (previously presented) The method of claim 41, wherein said chalcogenide material is formed after forming said electrical contact.

45. (previously presented) The method of claim 41, wherein said electrical contact is a conductive sidewall spacer.

46. (currently amended) The method of claim 41, wherein said sidewall surface is the sidewall surface of a dielectric ~~material~~ layer.

47. (currently amended) A method of making an electrical device, comprising:

forming an electrical contact by a method comprising

providing a sidewall surface and an

adjoining bottom surface,

forming a conductive layer on said sidewall surface and said bottom surface, and

removing at least a portion of said conductive layer from said bottom surface, and

forming a dielectric material on said conductive layer and on said bottom surface;

and

forming a phase-change material,

said phase-change material in electrical communication with said electrical contact.

48. (previously presented) The method of claim 47, wherein said forming said conductive layer step comprises substantially conformally depositing said conductive layer on said sidewall surface and said bottom surface.

49. (previously presented) The method of claim 47, wherein said removing step comprises substantially anisotropically etching said conductive layer.

50. (previously presented) The method of claim 47, wherein said phase-change material is formed after forming said electrical contact.

51. (previously presented) The method of claim 47, wherein said electrical contact is a conductive sidewall spacer.

52. (currently amended) The method of claim 47, wherein said sidewall surface is the sidewall surface of a dielectric ~~material~~ layer.

53. (previously presented) The method of claim 47, wherein said phase-change material comprises at least one chalcogen element.

Claims 54-57 (cancelled)